

**Statement before Massachusetts
Auto Damage Appraiser
Licensing Board**

**Institute Research on
Cosmetic Crash Parts**

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The Insurance Institute for Highway Safety is a nonprofit research and communication organization that identifies ways to reduce motor vehicle crashes and losses. The Institute is funded by automobile insurers. I am a senior vice president with the Institute and am here to discuss the results of Institute research showing that cosmetic repair parts are irrelevant to a vehicle's ability to protect its occupants in the event of a crash.

A car's cosmetic repair parts (often called crash parts) include fenders, door skins, bumper covers, and the like. In the continuing debate about whether such parts from aftermarket suppliers are as good as cosmetic parts from original-equipment manufacturers, the issue of safety keeps cropping up. Claims are made that using cosmetic crash parts from sources other than original-equipment manufacturers could compromise safety. But the fact is, the source of the parts is irrelevant to safety because the parts themselves, except possibly the hood, serve no safety or structural function. They merely cover a car like a skin. Car hoods can affect occupant safety in a crash or even without a crash. But there is no evidence that hoods from aftermarket suppliers fail to perform as well as original-equipment hoods.



To demonstrate the irrelevance of safety in the cosmetic crash parts debate, the Institute recently tested a 1997 Toyota Camry from which the front fenders, door skins, and front bumper cover were removed (top photo). The original-equipment hood was replaced with a certified hood from an aftermarket supplier. The test results then were compared with results involving a 1997 Camry with its original-equipment parts intact (bottom photo).



Both Camrys performed with distinction in 40 mph frontal offset impacts. Both earned good crashworthiness ratings according to the Institute's evaluation procedures. This means a Camry that does not have any of its front-end cosmetic parts is rated better than most competing midsize cars that still have such parts.



During each test, researchers recorded measures on the driver dummy to assess the likelihood that people in on-the-road crashes would be injured. These measures were similar. The dummy in the Camry without its cosmetic parts recorded slightly lower results for leg injuries, but the differences were well within the expected range of test-to-test variability.

After each test, researchers also measured intrusion into the occupant compartment. There was slightly more intrusion in the footwell of the Camry without its cosmetic parts (again, the differences were within the range of test-to-test variability), while measurements of instrument panel and A-pillar movement were almost identical. Control of the crash test dummies and measured steering column movement also were similar. In each test, the dummy's head hit the B-pillar during rebound. Head acceleration from this impact in the Camry without its cosmetic parts was lower. Both the original-equipment and aftermarket hoods performed well, buckling as they are designed to do. Neither one was pushed back anywhere near the windshield, so front-seat occupants in real crashes similar to these tests would not be endangered.



Because there essentially was no difference in crashworthiness performance, both Camrys were rated good. The cosmetic parts did not influence the results. Only three other midsize four-door cars the Institute has tested match the

Camrys' crashworthiness ratings. In contrast, 10 cars in this class are rated acceptable, 2 are marginal, and 11 are poor. So a Camry without cosmetic parts offers more protection in a serious frontal crash than many competing cars with all cosmetic parts supplied by the original-equipment manufacturers.

The recent crash test of a 1997 Toyota Camry into a deformable barrier at 40 mph is not the first time the Institute has used tests to show the irrelevance of safety to the cosmetic repair parts debate. When this controversy heated up in the 1980s, the safety-related claim of the moment was that cars

repaired with cosmetic parts from aftermarket suppliers might not comply with federal motor vehicle safety standards. The Institute entered this dialogue in 1987, saying there is no reason to believe—let alone assume—that cosmetic crash parts significantly influence car crashworthiness. To reinforce this conclusion, Institute researchers demonstrated the point in a crash test. In the test, a 1987 Ford Escort was crashed into a rigid barrier at 30 mph (see photo) to measure compliance with the federal motor vehicle safety standards that specified crash test requirements at the time. Like the Camry, the Escort was crashed without its front fenders, door skins, or grille. The original-equipment hood was replaced with an aftermarket part to measure compliance with federal requirements, according to which the hood must not intrude into the windshield or a defined zone around it in a 30 mph crash.



The Escort complied with all front-into-barrier crash test performance requirements specified in five separate federal standards. It met these requirements with room to spare. There was no appreciable movement of the steering column. Head injury measures for driver and passenger dummies were far below the threshold used to indicate injury likelihood. Chest and upper leg injury measures also were low. Windshield retention was 100 percent. The hood buckled and did not intrude into the protected zone (see photo). Fuel spillage was zero.

The Institute is not the only research group to conduct such a test. In 1995, England's Motor Insurance Repair Research Centre tested a 1995 Vauxhall Astra from which the fenders and door skins had been removed and the hood replaced with an aftermarket part. The result of this front-into-rigid-barrier impact at 30 mph was similar to the Escort test. That is, the Astra complied with the same U.S. safety standards. According to the Astra's certification report, "comparison of the test vehicle with a previously tested vehicle of identical type tested to the same standard indicated that the presence of 'non-indigenous' panels had little effect on failure mode, as did the absence of the front outer wing panels and doorskins."

Unlike other cosmetic crash parts used in auto repairs, the car hood is the single cosmetic crash part that could influence safety. There are two possible concerns. The first has nothing to do with performance in a crash. It has to do with whether a hood latch or attachment points could fail while driving and allow the hood to fly up suddenly, obscuring the driver's view. In its article last year on cosmetic crash parts, *Consumer Reports* cited an unverified claim that an aftermarket hood failed in this manner and caused a crash. A notable absence from the same article is acknowledgement that hoods from original-equipment manufacturers can, and do, have defective latches and/or attachment points that fail in the same manner. Auto manufacturers have conducted 47 safety-related recalls involving original-equipment hoods, mostly because of hood latches and attachment hardware. More than 6 million vehicles have been recalled. Many cases have involved hoods that flew up, causing some reported crashes. Such a large number of safety-related recalls of original-equipment hoods lends perspective to the unsubstantiated allegation in *Consumer Reports* that aftermarket hoods are somehow inferior.

The second possible concern relates to hood performance in crashes—whether they will buckle, as new-car hoods are designed to do, so a hood does not get driven back near the windshield. The Certified Automotive Parts Association (CAPA) certifies hoods by ensuring that the same buckle points present in hoods from car companies also are present in the aftermarket hoods it approves. Hoods must buckle as they are supposed to, or else safety could be compromised. It is obviously not feasible to crash test every aftermarket hood. But in several tests in which original-equipment hoods have been replaced by aftermarket ones, the replacement hoods have performed exactly as they should. This is to be expected because the buckle points are built in.

In conclusion, the crash testing done by the Institute and others demonstrates that cosmetic crash parts, such as door skins, fenders and bumper covers, are irrelevant to the crashworthiness performance of the vehicles. It is the design of the underlying structure of the vehicle—not its cosmetic skin—that provides protection in the event of a crash. Hoods are the only cosmetic crash part that could be a source of possible safety problems. However, in crash tests done by the Institute and others, aftermarket hoods have performed in the same manner as original equipment hoods. In the early 1990s, the National Highway Traffic Safety Administration, the federal agency that regulates motor vehicle safety, examined safety concerns about aftermarket parts and concluded that “there are no data or analyses available at this time to suggest a safety problem with aftermarket or replacement components.” There still are not.